



| | |
|------------|-------------------|
| ISBN | 978-81-929866-0-9 |
| Website | icidret.in |
| Received | 21-December-2015 |
| Article ID | ICIDRET012 |

| | |
|----------|---------------------|
| VOL | 01 |
| eMail | icidret@asdf.res.in |
| Accepted | 30-December-2015 |
| eAID | ICIDRET.2016.012 |

Functional Clothing for Renal Failure Patients

Monisha Singh¹, Sangita Srivastava²

¹Junior Research Fellow, Department of Home Science, University of Allahabad, Allahabad U.P

²Professor, Department of Home Science, University of Allahabad. Allahabad. U.P

Abstract: The persons above 60 years of age till the end of life are considered as elderly. The older age is mainly characterized by declining physical activities and occurrence of many diseases like cardiovascular diseases, kidney failure, dementia, unconsciousness etc. The outcome of many of these diseases is the use of urinary catheter. Elderly people are required to use these urinary catheters for longer period of time which causes difficulty in wearing clothes. So there is requirement of such clothing styles which does not cause difficulty in dressing and undressing to the elderly person using urinary catheters and their caregivers. The researcher has designed some clothing for such elderly so that dressing and undressing could be made easier and simpler and carrying catheter bag is no more trouble for them.

Keywords: Clothing, elderly, catheter.

INTRODUCTION

Aging is a natural phenomenon in human life. It is a normal process which causes changes in the physiology, psychology, anatomy of human being. Most of these changes are degenerative in nature and most of them suffer from some kind of chronic sickness. Due to their diseased state of body we see them in poor attire, and in the subconscious mind, they do not want to be seen. Human beings are gregarious species. Isolation leads to a poor mental function leading up to dementia, bipolar disorders, ADHD and even Alzheimer's. The researcher investigated these issues through questionnaires and interview method.

The researcher then decided to design some functional dresses which were close to usual formal dressing; yet performing the functional requirement of ailing the persons of both sexes. One of the most common health problems in older age is involuntary emission of urine due to kidney diseases, dementia, stroke etc. In such patients urinary catheters are used. These catheters have a tube which leads to drainage bag that holds collected urine. These drainage bags can be attached with elastic bands to leg of elderly but they find it ugly and out of place. Hence, they carry the drainage bag in their hand. The appearance of a person with a urine bag in his/her hand is socially unacceptable. People just like to drift away from such patients. There is requirement of clothing which has incooperated features to manage the urinary catheters. The clothing should be in cooperated with features so that dressing and undressing become comfortable and the patients give an appearance of being dressed like any other normal person.

In this study a set of new functional clothing for the catheters users were designed. While designing the clothing for catheter user, main attention was paid to the features which are;

- More comfortable
- Allow easy access for care and emptying the urine from drainage bags from time to time.
- Easier to manage either independently or with assistance from a caregiver
- Varied clothing features which presents no distinction from others
- Aesthetically beautiful which beautifies their outward appearance.

This paper is prepared exclusively for International Conference on Inter Disciplinary Research in Engineering and Technology 2016 [ICIDRET] which is published by ASDF International, Registered in London, United Kingdom. Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage, and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honoured. For all other uses, contact the owner/author(s). Copyright Holder can be reached at copy@asdf.international for distribution.

2016 © Reserved by ASDF.international

Cite this article as: Monisha Singh, Sangita Srivastava. "Functional Clothing for Renal Failure Patients". *International Conference on Inter Disciplinary Research in Engineering and Technology (2016): 55-58.* Print.

Methodology

The design of the clothing should be such that it must fulfil all the needs and satisfy the preference of users, hence an extensive interview was done on the clothing problems, needs and preferences of the elderly men. Based on the interview and questionnaires these problems were diagnosed-

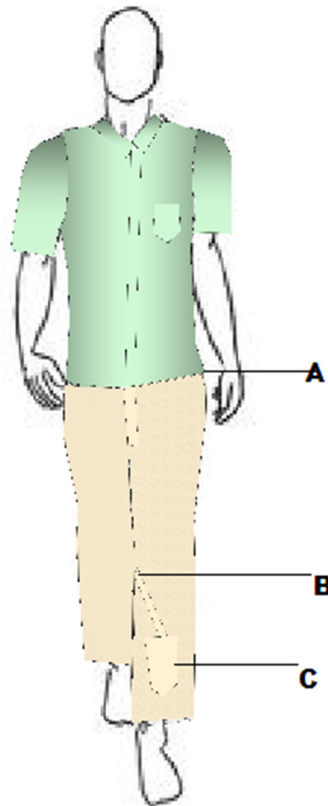
- Problem in dressing and undressing.
- Problem in emptying the drainage bag from time to time.
- Problem in carrying the drainage bag.
- Problem with lack of aesthetic dressing consideration in their functional clothing design.

On the basis of result of interview a set of new functional clothing for urinary catheter user was designed, and focus was given on the points which came out of the extensive review about clothing needs and problems. The clothing should have functionality but at the same time the aesthetics of clothing should also be pleasing. The new designs were made with some modifications and adaptation in order to make clothing more comfortable, functional, beautiful and convenient to use.

Principles in designing functional clothing

- Functionality- the design must be practical. It should be in cooperated with features that are easy to put on and take off, provide easier for emptying the drainage bags and provide access to carry the drainage bags. Cotton fabric is used for making trousers as it is comfortable and can be sterilized.
- Aesthetics- the design should have hidden variation, from the normal clothing, but should give the patient a feeling of being dressed like all the others. It is important to maintain the self-esteem and confidence of the patient. This can be reposed in him only with his being able to dress normally and feel normal.

Clothing designs for catheter users

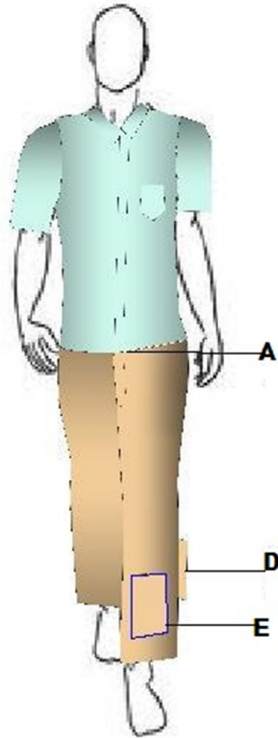


Design 1

This is an adaptive trouser for elderly men who have been put on a catheter due to any particular ailment. The main features added in trouser to increase its functionality are;

Cite this article as: Monisha Singh, Sangita Srivastava. "Functional Clothing for Renal Failure Patients". *International Conference on Inter Disciplinary Research in Engineering and Technology (2016)*: 55-58. Print.

- **Elasticized at waist (A)**-this added feature increase the comfort properties of the garment as now dressing and undressing become easier and will also adjust to increasing or decreasing size of waist
- **A small opening in the lower limb region (B)**-this feature provide opening in the leg of trouser so that catheter pipe can be handled easily and gracefully.
- **A pocket on the lower part of the trouser (C)** -The small size drainage bag is measured and according to that size a pocket has been attached. This will provide a space for keeping the drainage bag and now there is no need to carry the drainage bag on their hand.
- **Longer fly till the lower part with Velcro closure**- This feature will provide easier access for inserting and removing the catheter tube,
- All these features also make the process of emptying the drainage bags from time to time much easier and faster and also lessen the risk of infections.



Design 2

This is another adaptive trouser for the elderly using urinary catheters. This trouser also have elasticized waist and longer fly with Velcro closure but other features vary from design 1 such that

- **Zipper opening at the side seam of the leg of the trouser (D)**- this will provide easier access for emptying the drainage bag and handling it easily.
- **Concealed pocket on the inner side of trouser (E)**-this provide access for keeping the drainage bags without its visibility. This feature provide functionality and beautification in the same time.
- The trousers are wider by 1.5” at the bottom in order to adjust the drainage bag.

Results and Discussions

20 pieces of these newly designed functional trousers were prepared. 10 pieces of each design were prepared. These trousers were then provided to 3 reputed hospitals in Allahabad city. The evaluation was done by the doctors, patients using urinary catheter themselves and also their caregivers. On a likert scale of 10, the trousers were evaluated on the following attributes. It got a mean score of the following from all members.

The trousers were found to be really functional and they were highly accepted. About 86.3% of the patients, their caregivers and doctors like this dress.

Cite this article as: Monisha Singh, Sangita Srivastava. “Functional Clothing for Renal Failure Patients”. *International Conference on Inter Disciplinary Research in Engineering and Technology (2016)*: 55-58. Print.

| Attributes | Design1 | Design2 |
|---------------|---------|---------|
| Aesthetics | 8.6 | 9.1 |
| Functionality | 8.5 | 9 |
| Wear ability | 9 | 9 |
| Usage | 8 | 8.4 |
| Acceptance | 8.5 | 9.5 |

This data suggest that the newly designed functional trousers are highly acceptable and prove to be a new innovation infield of clothing design. The clothing is designed skilfully by giving focus on style and colour; hence combining functional and aesthetic properties in perfect way.

Conclusion

Two functional designs for the elderly male using urinary catheter are prepared. In designing these trousers much consideration was given to the daily activities of catheter users . The designs were user oriented. Much thinking and work has gone into critically thinking about the aesthetic appearance and largely the comfort of the patients. All the patients measured low self-worth and a kind of mental depression. But when they wore these functional trousers there was significant enhancement in their self-worth and levels of well-being. Howsoever ill a patient may be, but he/she always wants to show his bright side to the world. Least of all would like to live with sympathy for him in other people's eyes.

More work could be done in this field for patients of other diseases, in our endeavour to brighten up the world of the suffering people

REFERENCES

1. Wang Y, Wu D, Zhao M and Li J "Evaluation on an ergonomic design of functional clothing for wheelchair users", Applied ergonomics, 45(2014)550-555
2. Chang W, Zhao Y, Guo R, Wang Q and Gu X "Design and study of clothing structure for people with limb disabilities" Journal of Fibre bioengineering and informatics, 2,(2009), 62-67
3. Civitci S "An ergonomic garment design for elderly Turkish men", Applied ergonomics, , 35,(2004), 243-251
4. Rosenblad-Wallin E, "User orientated product development applied to functional clothing design" , Applied ergonomics, 16 (1985), 279-287
5. Hoy B, Wagner L, Hall "The elderly patient's dignity. The core value of health" International Journal of Qualitative Studies on Health and Well-being, 2(2007): 160-168